

CLAIMS

We claim:

1. A barb assembly for use with a cable duct component to oppose removal of a cable duct section from the cable duct component, the barb assembly comprising:

5 a barb comprising a body and one or more barb arms extending from the body to bitingly engage an end of a cable duct section and to oppose removal of a cable duct section from the cable duct component; and

10 a releasable assembly for applying a force to the barb and, responsive to the application of the force, for moving the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

2. The barb assembly of claim 1, wherein in the engaged position the barb engages an end of a cable duct section.

15 3. The barb assembly of claim 1, wherein actuating the releasable assembly to an engaged position causes at least one of the barb arms to bitingly engage a cable duct section.

20 4. The barb assembly of claim 1, wherein the releasable assembly is in the engaged position and at least one of the barb arms is bitingly engaging a cable duct section.

5. The barb assembly of claim 1, further comprising a spring bias that biases the releasable assembly to the unengaged position upon actuating the releasable assembly to the unengaged position.

5 6. The barb assembly of claim 1, wherein the releasable assembly comprises a scotch yoke assembly.

10 7. The barb assembly of claim 6, wherein actuation of the scotch yoke assembly actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

15 8. The barb assembly of claim 6, wherein actuation of the scotch yoke assembly causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

9. The barb assembly of claim 6, wherein the scotch yoke assembly further comprises:

20 a yoke connected to the cable duct component, the yoke comprising a slot adapted to receive a shaft and to act on the shaft;

one or more bearings eccentrically connected to the shaft, the bearings adapted to rotate and act on the barb; and

one or more arms, each concentrically connected to one of the bearings and each adapted to rotate.

10. The barb assembly of claim 9, wherein rotation of the one or more arms causes the slot to act on the shaft and the bearing to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

11. The barb assembly of claim 1, wherein the releasable assembly comprises a cam barrel assembly.

12. The barb assembly of claim 11, wherein actuation of the cam barrel actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

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13. The barb assembly of claim 11, wherein actuation of the cam barrel causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

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14. The barb assembly of claim 11, wherein the cam barrel assembly further comprises:

a cam barrel rotatably connected to the cable duct component, the cam barrel comprising a cammed slot adapted to receive a portion of the barb body and adapted to act on the barb.

5 15. The barb assembly of claim 14, further comprising one or more arms extending from the cam barrel.

10 16. The barb assembly of claim 14, wherein rotation of the cam barrel causes the cammed slot to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

15 17. The barb assembly of claim 1, wherein the releasable assembly comprises a lever assembly.

18. The barb assembly of claim 17, wherein actuation of the lever actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

20 19. The barb assembly of claim 17, wherein actuation of the lever causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

20. The barb assembly of claim 17, wherein the lever assembly further comprises:

a lever and a lever mount, the lever comprising a lever mount bearing surface and
5 a barb bearing surface, the lever mount bearing surface adapted to act on the lever mount and the barb bearing surface adapted to act on the barb.

21. The barb assembly of claim 20, wherein actuation of the lever causes the lever mount bearing surface to act on the lever mount and causes the barb bearing surface
10 to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

22. A cable duct component that can receive an end of a cable duct section,
15 the cable duct component comprising:

a barb assembly comprising:

a barb comprising a body and one or more barb arms extending from the body to bitingly engage an end of a cable duct section and to oppose removal of a cable duct section from the cable duct component; and

20 a releasable assembly for applying a force to the barb and, responsive to the application of the force, for moving the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

23. The cable duct component of claim 22, wherein in the engaged position the barb engages an end of a cable duct section.

5 24. The cable duct component of claim 22, wherein actuating the releasable assembly to an engaged position causes at least one of the barb arms to bitingly engage a cable duct section.

10 25. The cable duct component of claim 22, wherein the releasable assembly is

in the engaged position and at least one of the barb arms is bitingly engaging a cable duct section.

15 26. The cable duct component of claim 22, wherein the barb assembly further comprises a spring bias that biases the releasable assembly to the unengaged position upon actuating the releasable assembly to the unengaged position.

27. The cable duct component of claim 22, wherein the cable duct component is a cable duct coupler.

20 28. The cable duct component of claim 22, wherein the cable duct component is a cable duct reducer fitting.

29. The cable duct component of claim 22, wherein the releasable assembly comprises a scotch yoke assembly.

30. The cable duct component of claim 29, wherein actuation of the scotch yoke assembly actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

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31. The cable duct component of claim 29, wherein actuation of the scotch yoke assembly causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

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32. The cable duct component of claim 29, wherein the scotch yoke assembly further comprises:

a yoke connected to the cable duct component, the yoke comprising a slot adapted to receive a shaft and to act on the shaft;

15 one or more bearings eccentrically connected to the shaft, the bearings adapted to rotate and act on the barb; and

one or more arms, each concentrically connected to one of the bearings and each adapted to rotate.

20 33. The cable duct component of claim 32, wherein rotation of the one or more arms causes the slot to act on the shaft and the bearing to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one

or more barb arms from an unengaged position to an engaged position without the use of tools.

34. The cable duct component of claim 22, wherein the releasable assembly

5 comprises a cam barrel assembly.

35. The cable duct component of claim 34, wherein actuation of the cam barrel actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

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36. The cable duct component of claim 34, wherein actuation of the cam barrel causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

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37. The cable duct component of claim 34, wherein the cam barrel assembly further comprises:

a cam barrel rotatably connected to the cable duct component, the cam barrel comprising a cammed slot adapted to receive a portion of the barb body and adapted to 20 act on the barb.

38. The cable duct component of claim 37, further comprising one or more arms extending from the cam barrel.

39. The cable duct component of claim 37, wherein rotation of the cam barrel causes the cammed slot to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

40. The cable duct component of claim 22, wherein the releasable assembly comprises a lever assembly.

10 41. The cable duct component of claim 40, wherein actuation of the lever actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

15 42. The cable duct component of claim 40, wherein actuation of the lever causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

20 43. The cable duct component of claim 40, wherein the lever assembly further comprises:

a lever and a lever mount, the lever comprising a lever mount bearing surface and a barb bearing surface, the lever mount bearing surface adapted to act on the lever mount and the barb bearing surface adapted to act on the barb.

44. The cable duct component of claim 43, wherein actuation of the lever causes the lever mount bearing surface to act on the lever mount and causes the barb bearing surface to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

45. A cable duct system comprising:

- a cable duct section comprising an end; and
- 10 a cable duct component that can receive the end of the cable duct section, the cable duct component comprising a barb assembly, the barb assembly comprising:
 - a barb comprising a body and one or more barb arms extending from the body to bitingly engage the cable duct section and to oppose removal of the cable duct section from the cable duct component;
 - 15 a releasable assembly for applying a force to the barb and, responsive to the application of the force, for moving the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

46. The cable duct system of claim 45, wherein in the engaged position the barb engages an end of a cable duct section.

47. The cable duct system of claim 45, wherein actuating the releasable assembly to an engaged position causes at least one of the barb arms to bitingly engage a cable duct section.

5 48. The cable duct system of claim 45, wherein the releasable assembly is in the engaged position and at least one of the barb arms is bitingly engaging a cable duct section.

10 49. The cable duct system of claim 45, wherein the barb assembly further comprises a spring bias that biases the releasable assembly to the unengaged position upon actuating the releasable assembly to the unengaged position.

15 50. The cable duct system of claim 45, wherein the cable duct component is a cable duct coupler.

51. The cable duct system of claim 45, wherein the cable duct component is a cable duct reducer fitting.

20 52. The cable duct system of claim 45, wherein the releasable assembly comprises a scotch yoke assembly.

53. The cable duct system of claim 52, wherein actuation of the scotch yoke assembly actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

5 54. The cable duct system of claim 52, wherein actuation of the scotch yoke assembly causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

10 55. The cable duct system of claim 52, wherein the scotch yoke assembly further comprises:

a yoke connected to the cable duct component, the yoke comprising a slot adapted to receive a shaft and to act on the shaft;

15 one or more bearings eccentrically connected to the shaft, the bearings adapted to rotate and act on the barb; and

one or more arms, each concentrically connected to one of the bearings and each adapted to rotate.

20 56. The cable duct system of claim 55, wherein rotation of the one or more arms causes the slot to act on the shaft and the bearing to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

57. The cable duct system of claim 45, wherein the releasable assembly comprises a cam barrel assembly.

5 58. The cable duct system of claim 57, wherein actuation of the cam barrel actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

10 59. The cable duct system of claim 57, wherein actuation of the cam barrel causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

15 60. The cable duct system of claim 57, wherein the cam barrel assembly further comprises:

a cam barrel rotatably connected to the cable duct component, the cam barrel comprising a cammed slot adapted to receive a portion of the barb body and adapted to act on the barb.

20 61. The cable duct system of claim 60, further comprising one or more arms extending from the cam barrel.

62. The cable duct system of claim 60, wherein rotation of the cam barrel causes the cammed slot to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

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63. The cable duct system of claim 45, wherein the releasable assembly comprises a lever assembly.

10 64. The cable duct system of claim 63, wherein actuation of the lever actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

15 65. The cable duct system of claim 63, wherein actuation of the lever causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

66. The cable duct system of claim 63, wherein the lever assembly further comprises:

20 a lever and a lever mount, the lever comprising a lever mount bearing surface and a barb bearing surface, the lever mount bearing surface adapted to act on the lever mount and the barb bearing surface adapted to act on the barb.

67. The cable duct system of claim 66, wherein actuation of the lever causes the lever mount bearing surface to act on the lever mount and causes the barb bearing surface to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an
5 engaged position without the use of tools.

68. A method for assembling a cable duct system, the method comprising:
providing a cable duct section comprising an end;
providing a cable duct component that can receive the end of the cable duct
10 section, the cable duct component comprising a barb assembly, the barb assembly comprising:
a barb comprising a body and one or more barb arms extending from the body to bitingly engage the end of the cable duct section and to oppose removal of the end of the cable duct section from the cable duct component; and
15 a releasable assembly for applying a force to the barb and, responsive to the application of the force, for moving the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools;
inserting the end of the cable duct section into the cable duct component; and
without the use of tools, actuating the releasable assembly to the engaged
20 position.

69. The method of claim 68, further comprising biasing the releasable assembly to the unengaged position upon actuating the releasable assembly to the unengaged position.

5 70. The method of claim 68, wherein the cable duct component is a cable duct coupler.

71. The method of claim 68, wherein the cable duct component is a cable duct reducer fitting.

10 72. The method of claim 68, wherein the releasable assembly comprises a scotch yoke assembly.

15 73. The method of claim 72, wherein actuation of the scotch yoke assembly actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

20 74. The method of claim 72, wherein actuation of the scotch yoke assembly causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

75. The method of claim 72, wherein the scotch yoke assembly further comprises:

a yoke connected to the cable duct component, the yoke comprising a slot adapted to receive a shaft and to act on the shaft;

5 one or more bearings eccentrically connected to the shaft, the bearings adapted to rotate and act on the barb; and

one or more arms, each concentrically connected to one of the bearings and each adapted to rotate.

10 76. The method of claim 75, wherein rotation of the one or more arms causes the slot to act on the shaft and the bearing to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

15 77. The method of claim 68, wherein the releasable assembly comprises a cam barrel assembly.

20 78. The method of claim 77, wherein actuation of the cam barrel actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

79. The method of claim 77, wherein actuation of the cam barrel causes the releasable assembly to apply a force to the barb and, responsive to the application of the

force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

80. The method of claim 77, wherein the cam barrel assembly further

5 comprises:

a cam barrel rotatably connected to the cable duct component, the cam barrel comprising a cammed slot adapted to receive a portion of the barb body and adapted to act on the barb.

10 81. The method of claim 80, further comprising one or more arms extending from the cam barrel.

15 82. The method of claim 80, wherein rotation of the cam barrel causes the cammed slot to act on the barb to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

20 83. The method of claim 68, wherein the releasable assembly comprises a lever assembly.

84. The method of claim 83, wherein actuation of the lever actuates the releasable assembly between the unengaged position and the engaged position without the use of tools.

85. The method of claim 83, wherein actuation of the lever causes the releasable assembly to apply a force to the barb and, responsive to the application of the force, to move the barb and one or more barb arms from an unengaged position to an
5 engaged position without the use of tools.

86. The method of claim 83, wherein the lever assembly further comprises:
a lever and a lever mount, the lever comprising a lever mount bearing surface and
a barb bearing surface, the lever mount bearing surface adapted to act on the lever mount
10 and the barb bearing surface adapted to act on the barb.

87. The method of claim 86, wherein actuation of the lever causes the lever mount bearing surface to act on the lever mount and causes the barb bearing surface to act on the barb to apply a force to the barb and, responsive to the application of the force,
15 to move the barb and one or more barb arms from an unengaged position to an engaged position without the use of tools.

88. A method for assembling a cable duct system, the method comprising:
providing a cable duct section comprising an end;
20 providing a cable duct component that can receive the end of the cable duct section and that can engage the cable duct section with a barb;
inserting the end of the cable duct section into the cable duct component; and

without the use of tools, actuating a releasable assembly to apply a force to the barb and, responsive to the application of the force, engaging the cable duct section with the barb.

5 89. The method of claim 88, wherein the barb opposes removal of the cable duct section from the cable duct component.

90. A cable duct component comprising a scotch yoke assembly for coupling and uncoupling a cable duct section.

10 91. A cable duct component comprising a scotch yoke assembly for engaging and disengaging a barb with an end of a cable duct section.

15 92. A cable duct component comprising a cam barrel assembly for coupling and uncoupling a cable duct section.

93. A cable duct component comprising a cam barrel assembly for engaging and disengaging a barb with an end of a cable duct section.

20 94. A cable duct component comprising a lever assembly for coupling and uncoupling a cable duct section.

95. A cable duct component comprising a lever assembly for engaging and disengaging a barb with an end of a cable duct section.

5 96. A cable duct component comprising a cam assembly for coupling and uncoupling a cable duct section.

97. A cable duct component comprising a cam assembly for engaging and disengaging a barb with an end of a cable duct section.